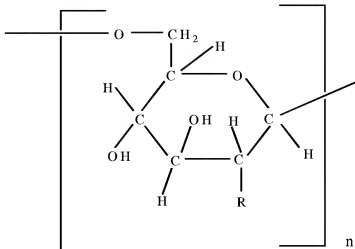


AMENDMENTS TO THE CLAIMS

Please replace all prior versions, and listings, of claims in the application with the following list of claims, in which insertions are indicated by underlining and deletions are indicated by strikeouts or double bracketing.

1. (Currently Amended) A composition comprising
an isolated β -1,6-glucosamine polymer[s]], wherein less than 40% of glucosamine amino groups in the isolated polymer[s]] are substituted with acetate, wherein the composition is sterile,
and

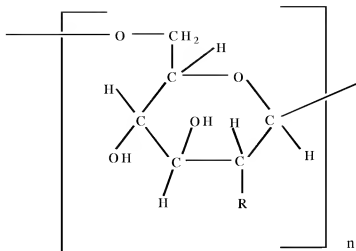
wherein ~~each of~~ the isolated polymer[s]] has the structure of



wherein n is an integer that is at least four, wherein R is selected from the group consisting of -
 NH-CO-CH_3 and -NH_2 , and

has a molecular weight of at least ~~800~~ 1200 Daltons.

2. (Currently Amended) A composition comprising
an isolated β -1,6-glucosamine polymer conjugated to a carrier compound, wherein less
than 40% of glucosamine amino groups in the isolated polymer are substituted with acetate, and
wherein the isolated polymer has the structure of



wherein n is an integer that is at least four, wherein R is selected from the group consisting of -NH-CO-CH₃ and -NH₂, and

has a molecular weight of at least ~~800~~ 1200 Daltons.

3. (Cancelled)
4. (Previously Presented) The composition of claim 1, wherein less than 35%, less than 30%, less than 25%, less than 20%, less than 15%, less than 10%, or less than 5% of the glucosamine amino groups are substituted with acetate.
5. (Previously Presented) The composition of claim 1, wherein none of the glucosamine amino groups is substituted with acetate.
6. (Previously Presented) The composition of claim 1, wherein the n is an integer selected from the group consisting of at least 6, at least 10, at least 20, at least 50, at least 100, at least 200, at least 300, at least 400 and at least 500.
7. (Currently Amended) The composition of claim 1, wherein the isolated polymer[s] ~~are~~ is a hetero-substituted polymer[s].

8. (Cancelled)

9. (Currently Amended) The composition of claim 1, wherein ~~each of~~ the isolated polymer[[s]] has a molecular weight selected from the group consisting of ~~at least 1200 Daltons~~, at least 1500 Daltons, at least 2000 Daltons, at least 2500 Daltons, at least 5000 Daltons, at least 7500 Daltons, at least 10,000 Daltons, at least 25,000 Daltons, at least 50,000 Daltons, at least 75,000 Daltons, and at least 100,000 Daltons.

10. (Currently Amended) The composition of claim 1, wherein ~~each of~~ the isolated polymer[[s]] has a molecular weight selected from the group consisting of at least 125,000 Daltons, at least 150,000 Daltons, at least 200,000 Daltons, at least 250,000 Daltons, at least 300,000 Daltons, at least 350,000 Daltons, at least 400,000 Daltons, at least 450,000 Daltons, and at least 500,000 Daltons.

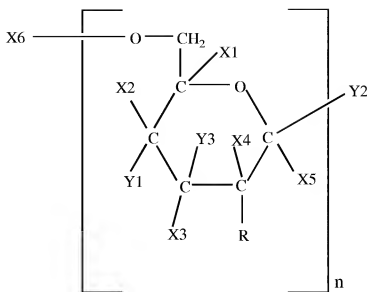
11. (Currently Amended) The composition of claim 1, wherein the length of ~~each of the β -1,6-glucosamine~~ the isolated polymer[[s]] is selected from the group consisting of at least 6, at least 10, at least 20, at least 50, at least 100, at least 200, at least 300, at least 400 and at least 500 monomer units.

12. (Previously Presented) The composition of claim 2, wherein less than 35%, less than 30%, less than 25%, less than 20%, less than 15%, less than 10% or less than 5% of the glucosamine amino groups are substituted with acetate.

13. (Previously Presented) The composition of claim 2, wherein none of the glucosamine amino groups is substituted with acetate.

14. (Currently Amended) The composition of claim 1, wherein the isolated polymer[[s]] ~~are~~ is at least 90% pure, at least 95% pure, at least 97% pure, or at least 99% pure.

15. (Currently Amended) The composition of claim 1, wherein ~~each~~ of the isolated polymer[[s]] is conjugated to a carrier compound.
16. (Currently Amended) The composition of claim 15, wherein ~~each~~ of the isolated polymer[[s]] is conjugated to the carrier compound through a linker.
17. (Previously Presented) The composition of claim 15, wherein the carrier compound is a peptide carrier.
18. (Previously Presented) The composition of claim 1, further comprising a pharmaceutically acceptable carrier.
19. (Original) The composition of claim 2, wherein the composition is sterile.
20. (Currently Amended) The composition of claim 1, wherein the isolated polymer[[s]] ~~are~~ is formulated as a vaccine.
21. (Currently Amended) A composition comprising
an isolated β -1,6-glucosamine polymer[[s]] conjugated to a carrier compound, wherein less than 40% of glucosamine amino groups in the isolated polymer are substituted with acetate, and wherein ~~each~~ of the isolated polymer[[s]] conjugated to a carrier compound ~~consists of~~ comprises the following structure:



wherein each of X1, X2, X3, X4, X5 and X6 is either H, a carrier compound, or a linker joined to a carrier compound, wherein each of Y1, Y2 and Y3 is either OH, a carrier compound or a linker joined to a carrier compound, provided only one of said X1, X2, X3, X4, X5, X6, Y1, Y2 or Y3 is the carrier compound or the linker joined to the carrier compound, wherein n is an integer that is at least four, wherein R is selected from the group consisting of -NH-CO-CH₃ and -NH₂, and has a molecular weight of at least ~~800~~ 1200 Daltons.

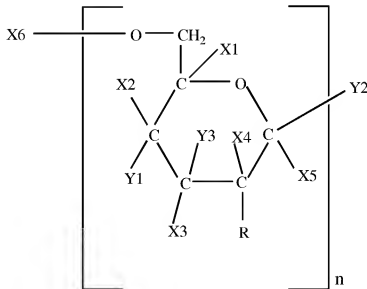
22. (Cancelled)
23. (Previously Presented) The composition of claim 21, wherein only one of said X1, X2, X3, X4, X5 or X6 is the carrier compound or the linker joined to the carrier compound.
24. (Previously Presented) The composition of claim 21, wherein only one of said Y1, Y2 or Y3 is the carrier compound or the linker joined to the carrier compound.
25. (Currently Amended) The composition of claim 21, wherein the carrier compound is a polysaccharide that is not an N-acetyl- β -1,6-glucosamine polymer protein.

26-41. (Cancelled)

42. (Currently Amended) A pharmaceutical composition comprising the composition of claim 1, wherein the isolated polymer[[s]] are is present in an effective amount to stimulate an immune response in a subject against bacteria that make native poly N-acetyl glucosamine (PNAG), and are is formulated in a pharmaceutically acceptable carrier.

43-85. (Cancelled)

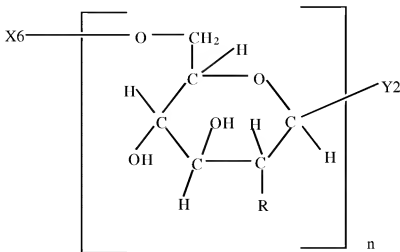
86. (Currently Amended) An isolated polysaccharide conjugated to a carrier compound comprising a β -1,6-glucosamine polymer, wherein less than ~~50%~~ 40% of glucosamine amino groups in the polymer are substituted with acetate, and wherein the isolated polysaccharide conjugated to a carrier compound has the structure of



wherein each of X1, X2, X3, X4, X5 and X6 is either H, a carrier compound, or a linker joined to a carrier compound, wherein each of Y1, Y2 and Y3 is either OH, a carrier compound or a linker joined to a carrier compound, provided only one of said X1, X2, X3, X4, X5, X6, Y1, Y2 or Y3 is

the carrier compound or the linker joined to the carrier compound, wherein n is an integer that is at least four, wherein R is selected from the group consisting of -NH-CO-CH₃ and -NH₂, and has a molecular weight of at least ~~800~~ 1200 Daltons.

87. (Currently Amended) The isolated polysaccharide conjugated to a carrier compound of claim 86, wherein the isolated polysaccharide conjugated to a carrier compound has the structure of



88. (Currently Amended) The isolated polysaccharide conjugated to a carrier compound of claim 86, wherein ~~less than 45%, less than 40%,~~ less than 35%, less than 30%, less than 25%, less than 20%, less than 15%, less than 10% or less than 5% of the glucosamine amino groups are substituted with acetate.

89. (Currently Amended) The isolated polysaccharide conjugated to a carrier compound of claim 86, wherein none of the glucosamine amino groups is substituted with acetate.

90. (Currently Amended) The isolated polysaccharide conjugated to a carrier compound of claim 87, wherein ~~less than 45%, less than 40%,~~ less than 35%, less than 30%, less than 25%, less than 20%, less than 15%, less than 10%, or less than 5% of the glucosamine amino groups are substituted with acetate.

91. (Currently Amended) The isolated polysaccharide conjugated to a carrier compound of claim 87, wherein none of the glucosamine amino groups is substituted with acetate.

92. (Cancelled)

93. (Currently Amended) The isolated polysaccharide conjugated to a carrier compound of claim 86, wherein the isolated polysaccharide has a molecular weight selected from the group consisting of ~~at least 1200 Daltons~~, at least 1500 Daltons, at least 2000 Daltons, at least 2500 Daltons, at least 5000 Daltons, at least 7500 Daltons, at least 10,000 Daltons, at least 25,000 Daltons, at least 50,000 Daltons, at least 75,000 Daltons, and at least 100,000 Daltons.

94. (Currently Amended) The isolated polysaccharide conjugated to a carrier compound of claim 86, wherein the isolated polysaccharide has a molecular weight selected from the group consisting of at least 125,000 Daltons, at least 150,000 Daltons, at least 200,000 Daltons, at least 250,000 Daltons, at least 300,000 Daltons, at least 350,000 Daltons, at least 400,000 Daltons, at least 450,000 Daltons, and at least 500,000 Daltons.

95. (Currently Amended) The isolated polysaccharide conjugated to a carrier compound of claim 86, combined with a pharmaceutically acceptable carrier.

96. (Currently Amended) The isolated polysaccharide conjugated to a carrier compound of claim 86, wherein the isolated polysaccharide conjugate is sterile.

97. (Currently Amended) The isolated polysaccharide conjugated to a carrier compound of claim 86, formulated as a vaccine.

98. (Previously Presented) The composition of claim 15, wherein the carrier compound is a carrier protein.

99. (Currently Amended) The pharmaceutical composition of claim 42, wherein the bacteria that make native poly N-acetyl glucosamine (PNAG) are *Staphylococci*.